

**Translation**

**PATENT COOPERATION TREATY**

PCT/MX2003/000067



**PCT**

**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference pct 006	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/MX2003/000067	International filing date ( <i>day/month/year</i> ) 22 August 2003 (22.08.2003)	Priority date ( <i>day/month/year</i> )
International Patent Classification (IPC) or national classification and IPC G01F 1/64 (2006.01), G01N 27/22(2006.01)		
Applicant INSTITUTO MEXICANO DEL PETRÓLEO		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of \_\_\_\_\_ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 08 March 2005 (08.03.2005)	Date of completion of this report 19 December 2005 (19.12.2005)
Name and mailing address of the IPEA/ES	Authorized officer
Facsimile No.	Telephone No.

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/MX2003/000067

## I. Basis of the report

### 1. With regard to the elements of the international application:\*

- ☒ the international application as originally filed
- ☒ the description:  
 pages 1-32, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☒ the claims:  
 pages 33-36, as originally filed  
 pages \_\_\_\_\_, as amended (together with any statement under Article 19  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☒ the drawings:  
 pages 1/13-13/13, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the sequence listing part of the description:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

### 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

### 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

### 4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/fig \_\_\_\_\_

### 5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/MX 03/00067

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims	1 - 22	YES
	Claims		NO
Inventive step (IS)	Claims	1 - 22	YES
	Claims		NO
Industrial applicability (IA)	Claims	1 - 22	YES
	Claims		NO

**2. Citations and explanations**

## Subject matter of the invention

The subject matter of the invention is a "method for reconstructing images for the visualisation of multiphase flows by electrical capacitance tomography" (ECT). The method is based on the acquisition of data which correspond to the image (electric parameters, such as capacitance measured at the electrodes of a sensor placed in the vicinity of a pipeline, well or tank), the processing of said data measured by global heuristic, non-linear optimisation methods (simulated annealing or genetic algorithm methods) in order to obtain an image of the spatial distribution of the electric permissivity or dielectric constant of the region in question, and the display of said image on a display device, permitting the visualisation of the different phases in the flow.

No document has been found which could be detrimental to the novelty and/or inventive step of the application.

## VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

#### Claims

- The section entitled "novelty of the invention" corresponds to what generally constitutes the claims and should be designated as such (PCT Article 6).
- The section with the claims should only contain the claims. The following paragraph which precedes claim 1 should be dispensed with: "Having described the present invention, the applicant considers that the invention is novel and therefore claims the disclosure in the following paragraphs".
- All dependent claims (claims 2-22) refer to the preceding claims by the term paragraph. This term is incorrect and should be replaced by the term claim (PCT Rule 6.4).

#### Drawings

- The reference numbers and/or letters which appear in the drawings should not be surrounded by a circle (PCT Rule 11.13(e)).
- All the sheets contained in the international application should be numbered in consecutive Arabic numerals (PCT Rule 11.7(a)).